swallowed unseparated the proportion would be still less. 5. Raw, measly pork may be exposed to considerable cold without the cysticerci losing their vitality. 6. In weather which is not hot enough to induce early putrefaction, the susceptibility of development can be retained for at least eight days, and probably for a longer period after the death of the pig. 7. The greater the number of the raw cysticerci that are consumed, the greater number of tæniæ will be found. In one case in which such food was largely consumed, thirty-three portions of heads were found. 8. In persons leading a quiet life, avoiding all excess in eating and drinking, and partaking of a uniform diet, even many of these worms may not give rise to any disturbances in the system. This prisoner, between the time of eating the cysticerci and his execution, was remarkably well in health, a considerable increase in the deposit of fat taking place. 9. Notwithstanding the quantity of separated proglottides at the lower portion of the intestinal canal, the muscles contained no cysticerci. This man, however, had no vomiting, and none of the embryos of the tæniæ entered the stomach, which, according to the author's investigations, is a necessary preliminary to the appearance of cysticercus in man. 10. The worms were found very firmly adherent in part to the free surface of the intestine, or at the sides of the valvulæ conniventes, and in part buried between these last. They could only be detached with great difficulty, and when the heads were loosened from one portion of the intestine, they at once fastened on to another with just as much force. 11. This explains why a means which, in some cases, acts very efficaciously in expelling the worms, in other cases proves of less avail. Thus, when the head is attached to the free surface of the intestine, or of the valvulæ, sharp purgatives will detach it; but, when placed at the base of the valvulæ, the effect of the purgatives may be only to bury it still deeper, and when the body is expelled without the head, the worm may be reproduced. When the head of the worm has become detached from the intestine, we must not allow it time to re-attach itself; and these medicinal agents alone, which induce powerful peristaltic action, and are accompanied by abundant secretion, are to be relied upon for procuring a radical cure. 12. Finally, the author replies to the reproaches which have been directed against him for his experimental feeding of condemned criminals. He maintains that, as a curable disease only had been produced, the man, even in the event of his having been pardoned, would have sustained no permanent mischief. He declares that, by employing active purgation by means of pomegranate extract, prepared as directed in his work on Parasites, he has never failed in expelling the worm. A further excuse for the experiment is derived from the fact that, owing to the regularity of diet observed by the criminal, and the absence of all excesses likely to give rise to vomiting, there was no possibility of the proglottides obtaining an entrance into the stomach, and becoming thence diffused amidst other of the structures.—*Med. Times & Gaz.*, Oct. 27, from *Deutsche Klinik*, No. 20.

4. *Bodies resembling Spermatozoa from the Urine of a Woman.*—These bodies were found by Dr. Beale in the urine of a patient of Mr. Cæsar Hawkins's, in St. George's Hospital. Many of the organisms were exactly like spermatozoa, and might certainly have been mistaken for them; but on examination of a number of specimens, it became evident that they were really vegetable organisms. This fact is one of great interest and importance with reference to questions of supposed rape. Dr. Beale had never before met with structures liable to be mistaken for spermatozoa.—*Brit. and For. Med.-Chir. Rev.*, Oct. 1860, from *Beale's Archives*, No. 3, p. 251.

MATERIA MEDICA AND PHARMACY.

5. *On the Physiological and Therapeutical Properties of the Peroxide of Hydrogen.*—Dr. Richardson read before the Medical Society of London (Oct. 15, 1860) a paper on this subject. The peroxide of hydrogen, which was dis-

covered by Thénard in 1818, is, in fact, water charged with oxygen in the active state. In his paper, Dr. Richardson took up the following points: The history of the substance; its preparation, with special regard to pharmaceutical applications; its physical and chemical properties; its relations to ozone; its physiological properties; its therapeutical value.

It was obvious from the author's description that some obstacles lie in the way of the application of the peroxide of hydrogen for medicinal purposes, owing to the difficulty experienced in its manufacture. This difficulty, however, Dr. Richardson greatly simplified; and we should infer that any experienced pharmaceutist could supply the medicine after a short acquaintance with the process of making it, as readily as quinine or other remedial bodies in preparing which time and care are the most important requisites. It was shown, indeed, that if perfectly pure peroxide of barium were supplied to the profession, every practitioner in the country could make his own solution of oxygen as he might want it.

The description of the chemical and physical properties of peroxides of hydrogen was unusually interesting. Passing over the facts relating to the influence of inorganic bodies upon it, those bearing on organic matter strike one most forcibly. Thus blood freed from fibrin absorbs the oxygen from the peroxide, and, if it is venous blood, it becomes arterial, with a rise in the temperature. Washed fibrin and cellular tissue in the fresh state evolve the oxygen. Albumen, urea, gelatin, fibrous membrane, and skin, produce no change. Grape sugar, and indeed all the sugars brought into contact with it, become decomposed, and evolve carbonic acid. Starch undergoes the same modification.

These observations refer to animal substances recently used; but when putrefaction has commenced, then the oxygen of the peroxide seems to act on all alike, and to produce rapid disintegration.

Another curious fact relating to the peroxide was, that its oxidizing power was easily prevented by the presence of certain bodies having a wide extension of names, but analogous characters. Ammonia in vapour or solution, tobacco, hydrocyanic acid, solution of aconite, and, in short, all the narcotics that are miscible with water, possess this neutralizing property; the permanency of the result being decided by the physical character of the agent employed.

The section of the paper on the relations of the peroxide of hydrogen to ozone was an interesting one, and indicated a careful study of this debated question. It is clear that Dr. Richardson looks upon the two bodies as one and the same. If he has any doubt, it is to the effect that in peroxide of hydrogen there is not any affinity at all between the two elements, hydrogen and oxygen. We pass the matter over to dwell on the physiological actions of the peroxide. These seemed to arrange themselves into the following brief propositions: A weak solution oxidizes blood; but this effect can be stopped by the action of the alkaloids and of narcotics. The peroxide supports the life of fishes; but the body of the animal causes rapid evolution of the gas. The solution injected into the left side of the heart of an animal restores the irritability, but appears to have an opposite effect on the right side. Injected into the arterial system immediately after death, it seems to restore to the muscles the power of contracting on the application of an irritant. It suspends to a considerable extent post-mortem rigidity, and it reduces spasmodic action, excited by such bodies as ammonia and hydrocyanic acid. On the therapeutical value of this powerful agent, Dr. Richardson did not dwell long; but reserved this essential point for another communication. He showed, however, that as an antidote to the alkaloidal poisons, as an external application to decomposing sores, as an internal remedy in fever, where the patient literally dies from deficient oxygen, and in diabetes, the medicine might be used with the very best promises of success. In the way of a pleasant acid drink, one could give, said Dr. Richardson, to the typhus-stricken man 100 cubic inches of active oxygen per hour. In diabetes, one fact had been made out also by the author, that, under the influence of the peroxide, the quantity of sugar at once became less, and the excretion of urine decreased in a relative degree. After illustrating his paper by experiment, Dr. Richardson concluded by stating that, in placing it on the annals of the society, he would guard himself, once and for all, from any exaggerated suggestions as to the value of this new remedial agent. The subject, indeed, was so novel, that after twelve months' study of it he had feared to use a sentence that had not been considered over and over again. He did not pretend to know all the properties of the peroxide. He did not bind himself inviolably to any opinion offered on the present occasion; nay, experience might show that the substance discussed in a medicinal sense took new and even different directions from those with which he had opened the argument. His own intentions and objects would be served if he did but call forth investigation and fact, let the course of events bend in whatever way they might.—*Lancet*, Oct. 20, 1860.

6. *On the Sulphate of Cinchonine in the Treatment of Intermittent Fevers in the French Army.* By M. Michel Levy.—The great expense incurred in the hospitals and infirmaries of the French army by the amount of sulphate of quinine employed in the treatment of intermittent fevers, especially in Corsica and Algeria, has led, besides the extension of prophylactic measures, to the endeavour to obtain substitutes for the quinine. After various proposals, which have met only with indifferent success, the salt of cinchonine has been more recently experimented on with more satisfactory results in the hospitals of Algiers, Oran, Constantinople, Cherchell, Rome, and La Rochelle. The reports of the chief medical officers of these establishments, which have been published, by order of the Minister of War, in the *Recueil of Military Medicine, Surgery, and Pharmacy* for 1859, afford the following interesting data: There was a total of 205 fevers, of which 106 were first attacks, and 99 relapses; the number of cures amounted to 194; the sulphate of cinchonine failed 11 times. Out of 115 of these cases, which had been carefully observed, 11, which had resisted the sulphate of cinchonine, were distributed as follows: 9 out of 58 treated at Oran; 2 out of 6 treated at Rome. In 19 cases, the first dose had arrested the fever; 37 had one attack during the treatment; 16 had two attacks; 12 had three; 2 had four; 2 five attacks, etc. From these reports it further appears that the association of the sulphates of quinine and of cinchonine neither increased nor diminished the individual power of each. In the various trials the toxic effects of the cinchonine were well marked; in the digestive system, nausea, gastralgia, vomiting, colic, diarrhœa (some of which symptoms, however, may have been due to the fever rather than to the drug); in the nervous system, general excitement, headache, vertigo, intoxication, noise in the ears, deafness, disorders of vision, nervous tremors. But although the toxic effects were fully equal to those of the sulphate of quinine, the therapeutic effects were much inferior (3 : 10).

In 1856, at the suggestion of M. Soubeiran, a series of experiments was made at Blidah by M. Laveran, principal medical officer there, on the comparative effects of the sulphate of cinchonine and of quinium, the results of which were published in the *Gazette Médicale.* M. Laveran divided his observations into four parallel series, according as the fevers were treated—1st, by expectation; 2d, by sulphate of quinine; 3d, by sulphate of cinchonine; 4th, by quinium. He directed his attention not only to the attacks of fever, but also to the accompanying disorders, the earthy hue of the skin, the enlargement of the spleen, and dropsies; and to make the comparison more exact, he employed the same quantity of cinchonine and of quinine, instead of using larger doses of the former, as most military physicians do. The general results were, that patients who before admission to hospital had suffered 5 attacks, had, on an average, with the quinine treatment, 1.30 attacks in the hospital; with the treatment by cinchonine, 2 attacks. Patients who had been the subjects of 6 attacks before admission, gave the average, under quinine, of 0.70; under cinchonine, 1.70 attacks. The cinchonine appeared less efficacious in proportion as the fevers were more recent and more intense. According to M. Laveran, neither the quinine nor the cinchonine had any effect on the engorgement of the spleen.

The observations made under the direction of M. Michel Levy in the hospitals of the East in the campaign of 1854, were postponed from the summer to the autumn season, in consequence of the violent epidemic of cholera which broke out at the Piræus, Gallipoli, and Varna. The experiments with the cinchonine were begun, however, in September, in the hospital of the Piræus under the im-